

The Imperial Academy of Sciences of St. Petersburg has recently adopted a system from the transcription of proper names into Russian. The symbols adopted by the Imperial Academy of Sciences are as follows:—

а б в г д е<sup>2)</sup> ё<sup>5)</sup> ж з и<sup>3)</sup> і й к л м н  
 а b v g d e, je ё ž z i, ji i j k l m n  
 о п р с т у ф х ц ч ш щ ъ ы ь<sup>4)</sup> ѳ<sup>2)</sup>  
 o p r s t u f ch c š šc — y ı ě, jě  
 ъ ю<sup>1)</sup> я<sup>1)</sup> ѳ v  
 e ju, iu, ja, ĩa f i

The table of Russian and Latin characters is accompanied by the following notes:—

(1) The liquid vowels и and ю beginning a syllable or preceded by ъ or ь (which, in the last case, are omitted from the transcription) are transcribed by "ja" and "ju"; if preceded by a consonant these vowels are transcribed by "ia" and "iu," if they form a syllable with the preceding consonant.

(2) The liquid vowel "e" and the vowel ѳ preceded by ъ or ь (which in this case are omitted in the transcription) are transcribed by "je" and "jě"; if preceded by a consonant these vowels are transcribed by "e" and "ě." But the liquid vowel "e" beginning a proper name is transcribed by a simple "e." Thus Egorov (pronounced Yegorov) begins with the liquid "e."

(3) The letter и preceded by ь is transcribed by "ji" (the liquid "i").

(4) The letter ѳ at the end of a word or before a consonant is transcribed by "i."

(5) The letter "e," when it is pronounced "jo," is represented, as in Russian, by "ё," but only when the author writes his name in that way.

(6) The names of foreign authors who have written in Russian are re-transcribed according to this system when the original orthography of these names is unknown; when it is known, the transcription of the Russian form of the name can be given in a note.

The British system also proposed to use the original form of any Russianised proper name in preference to re-transliterating them.

The Russian Academy's system does not attempt to secure the precision in re-transliteration which was the main object of the British system; for the letter "f" stands for either ф or ф; "u" stands for "y" or occurs in combination with "j" (which is itself the transliteration of й) for ю; "i" may be the transliteration of any one of four letters, и, і, ѳ, or v, as well as in combination with "u" and "a" from ю or я. The English "e" is the equivalent of either "e," ѳ, or ѳ. Five Russian letters have alternative transliterations. Phonetically, the Russian system has some advantage over the British, although in this respect it is in some ways less satisfactory. The Russian system, however, is proposed only for proper names, for which a less rigid system is perhaps necessary than for general scientific and bibliographic work.

J. W. GREGORY.

#### DYEING QUALITIES OF NATURAL AND SYNTHETIC INDIGO.

THE annual report, written by Mr. Cyril Bergtheil, of the Indigo Research Station of the Bihar Planters' Association for the year 1907-8 has just been issued; it contains an interesting statement with regard to the value of "synthetic" indigo as a dye-stuff compared with natural indigo. From last year's experiments (see NATURE, vol. lxxv., p. 614) it was concluded that "synthetic" indigo gives poorer results under practical conditions than those obtained with the natural dye, the latter imparting a richness of shade or "bloom" which was unobtainable with the synthetic material. It has since been ascertained that the synthetic indigo supplied for the tests was "brand E" of the Badische Anilin- und Soda-Fabrik, which contains some 25 per cent. of lime; the presence of this high proportion of alkali would of itself

account for the bad results obtained in the hydrosulphite vat. Experiments will now be made using the material which the Badische company itself recommends for the hydrosulphite vat.

The rest of the report deals with the results obtained in experiments made to ascertain the best conditions to be observed during the growth of the indigo plant, and in the extraction of the dye subsequently. Good results have been obtained by the use of sulphuric acid as a means of facilitating the germination of the seed of the Java plant, as recommended in a previous report (NATURE, vol. lxxv., p. 497), but care must be observed in ensuring that the acid used is of correct strength. A number of interesting experiments made to ascertain the effect of manuring on the production of indican in the plant are also reported. It would appear that the proportion of indican in the plant is independent of, or is actually decreased by, manurial treatment; in fact, the production of indican appears to be a starvation phenomenon, the proportion of the dye being increased by the absence of moisture and by adverse climatic conditions. On the other hand, the fertility of the land must not be allowed to drop too much, otherwise the growth of the plant as a whole is interfered with, and the return of the dye per acre is affected. New fungoid diseases, and an insect pest producing ravages on indigo plants, are also dealt with in the report.

#### MAY METEORS.

MAY, like June, cannot be said to be prolific of meteoric showers or to offer special inducements to observers. There are, of course, the May Aquarids, due during the first week of the month in the morning hours. There is also a pretty rich shower of Coronids between about May 11 and 18, but they are not often seen in marked prominence; and I believe there is a special shower at the close of May from the N.W. region of Pegasus; at about 334°+28°, which deserves more attention. I found the position of this radiant on reducing a number of meteors recorded by the Italian Meteoric Association in 1870, and very satisfactorily confirmed the showers in 1886 May 29 to June 4, the exact positions being 330°+28° and 333°+27° respectively.

There is a well-marked radiant of slow meteors from this point in July and August, but it has been seldom noticed at the close of May and early days of June. This year moonlight will not interfere with observation, and it would be interesting to watch the eastern sky in the mornings of May 29 to June 4 for the purpose of further investigating these η Pegasids. They are of the Perseid type, being swift and streaking meteors, and I think the stream may prove of some importance among the spring showers, though very little is known of it.

Any observations conducted for the purpose of re-detecting the system may also be found useful in giving us a fuller insight into the other meteoric displays of the same period.

W. F. DENNING.

#### UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

CAMBRIDGE.—Twenty students matriculated this term, bringing the total number for the year up to 1162. This is an advance of seventy-nine on the numbers for last year, and of ninety-seven on the numbers for 1906 to the present date. The increase in the number of advanced students over that of last year is ten.

It is proposed to confer the degree of Master of Arts, *honoris causa*, upon Mr. A. Henry, reader in forestry.

Mr. F. Darwin, F.R.S., has been nominated the representative of the University at a meeting convened by the Linnean Society of London to be held in July in celebration of the fiftieth anniversary of the reading of the joint essay by Charles Darwin and Alfred Russel Wallace "On the Tendency of Species to form Varieties; and on the Perpetuation of Varieties and Species by Natural Means of Selection."

The general board has reported on the proposed readership in metallurgy which the University will be enabled to establish by the munificence of the Goldsmiths' Com-

pany, which has presented 10,000*l.* for the purpose of founding and endowing a readership in metallurgy. The board is of opinion that the generous offer of the Goldsmiths' Company should be accepted, that a readership in metallurgy should be established, that the readership should be associated with the name of the company, and that among the principal duties of the reader should be that of research and other work in the precious metals and of instruction in the theory and practice of assaying. The board is of opinion, further, that the stipend attached to the readership should be 300*l.* a year, or such larger or smaller sum as the capital may produce. The board has consulted the professor of chemistry, and finds he is of opinion that there is suitable and sufficient accommodation in the present chemical laboratory to enable the reader to carry out the special duties of his office, but if the metallurgy of the commoner metals is to be studied accommodation will have to be provided on another site more suitable for the purpose.

LONDON.—Sir Arthur Rücker, principal of the University, was unfortunately absent through illness on Presentation Day, May 6, and was therefore unable to deliver his valedictory address. The principal's report, read by the secretary to the Senate, showed continued progress. Matriculation candidates were 7356 in 1907-8, compared with 7112 in 1906-7 and 7036 in 1905-6; of the 7356, however, only 3277 were admitted to the University. Eighty-five graduates of other universities and others similarly qualified have taken advantage of Statutes 113 and 129, and are now studying in London as internal students with the view of taking a higher degree of the University of London. Gifts amounting to 24,667*l.* had been received by the University during the past year. In concluding his report, the principal said:—"For three-quarters of a century all efforts for the establishment of university education in London were spasmodic, disconnected, and sometimes even avowedly antagonistic. Eight years of an attempt to substitute for this condition of chaos a common policy and such common government as may be compatible with the free play of individual effort have justified those who supported and carried the great reform which took effect in the autumn of 1900." The presentees included eleven Doctors of Science (eight in science, one in engineering, and two in economics), thirty-three Doctors of Medicine and eight Masters of Surgery, one Doctor of Literature, and one Doctor of Divinity.

The University exhibit at the Franco-British Exhibition promises to be very interesting and comprehensive. It will consist mainly of photographs, publications, and charts. An exhibit representing medical education in London, and another illustrating the social and athletic life of the students, have been specially organised. One of the most valuable exhibits is a collection of publications by teachers of the University and their students in the year 1907; a special catalogue of this collection is to be published. The University will publish a special handbook containing a catalogue of the University exhibit. The medical schools have prepared a large and fully illustrated handbook on medical education in London, and the students' representative council has published a students' handbook dealing especially with the social and athletic life of the student. Copies of all these publications will be available for visitors to the exhibition.

Admission is free to the following lectures addressed to advanced students of the University and others interested in the subject of the lectures:—Eight Mercers' Company lectures on "Recent Advances in Physiology," Prof. E. H. Starling, F.R.S.; four lectures (under the Chadwick benefaction) on "The Engineering Aspect of Recent Advances in connection with Sewering," W. D. Scott-Moncrieff; eight lectures on "Cholesterol and Lecithin: from the Chemical and Physiological Standpoints," J. A. Gardner; three lectures on "The Early Development of Mammalia," Prof. J. P. Hill; eight lectures on "Fossil Ferns and Allied Seed Plants," Dr. D. H. Scott, F.R.S.; three lectures on "The Thames and its Tributaries," Prof. H. G. Seeley, F.R.S.; and four lectures on "Recent Advances in the Determination of Minerals by Optical Methods," Dr. J. W. Evans. Particulars as to the lectures can be obtained from the academic registrar of the University.

OXFORD.—The following is the text of the speech delivered by Prof. Love in presenting Prof. W. James for the degree of D.Sc., *honoris causa*, on May 12:—

Adest Willelmus James, in Academia Harvardensi Professor emeritus, novi rerum ordinis in Psychologia inventor. Qui vir, quo magis eam scientiam promoveret quæ mentis humanæ agitationes, cogitationis memorieque rationem, sentiendi, percipiendi modos complectitur, nulla fere disciplina non institutus est. Neque enim solum acuto, ut philosophus, ingenio, sed usu et scientia, ut medicus, peritia etiam experimentis parta, ut physiologus, præstabat. Accessit, quod caput est, mira quædam divinandi facultas. Quæ renuntiat suis oculis assecutus est, vir non legendo sed intuendo doctus: idem admirabili dicendi genere inventa explicat. Mox a psychologia ad philosophiam conversus fecit ut hæc studia in omni orbis terrarum parte revivescerent. His quidem diebus apud nos de philosophia luculenter contionatus magno iuniorum seniorumque conventu Academiam nostram maxime delectavit.

THE Court of Glasgow University has decided to establish a lectureship in geography at the University.

THE King has consented to visit Leeds in July, accompanied by the Queen, for the purpose of opening the new university buildings.

VISCOUNT MORLEY OF BLACKBURN has been elected Chancellor of the University of Manchester in succession to the late Duke of Devonshire.

ARMSTRONG COLLEGE, Newcastle, has accepted with thanks an offer from Lord Barnard to place the sum of 1000*l.* in trust for the benefit of the agriculture department of the college.

THE public bequests announced under the will of the late Mr. T. Webb include:—University College, London, 5000*l.*, to be used and applied, so far as is practicable, for the purposes of physical research; University College of South Wales and Monmouthshire, 5000*l.*, also to be applied, so far as is practicable, for the purposes of physical research.

At a meeting of the Bristol City Council, held on May 5, a resolution was passed in favour of the proposal "to establish a university for Bristol and the west of England, and agreeing to give financial assistance to such university in the event of a charter for its establishment being obtained, provided arrangements as to the constitution of the university satisfactory to the council have been made."

In the House of Lords on Tuesday, Lord Stanley of Alderley moved the second reading of a Bill the main object of which was to make thirteen the minimum age at which a child can be exempted from the obligation to attend school. The second reading was rejected, not because any argument against the Bill could be put forward from the point of the physical and mental welfare of the nation, but because, to use the words of Lord Tweedmouth, "a sudden change in the law would cause a very considerable amount of inconvenience, especially to the agricultural interest, to the cotton interest, and to some extent to the woollen interest." So the healthy development of the body and mind of the child has to be sacrificed to these various interests. Meanwhile, the Education Bill for Scotland, read a second time in the House of Commons on May 5, makes fourteen the normal age of leaving the primary school. Evidently, we have to look to the north for advance in educational standards.

PROF. AINSWORTH DAVIS has been appointed principal of the Royal Agricultural College, Cirencester. The college was founded in 1845, and has hitherto been conducted without the least aid from Government or local authorities. It has been decided, however, to re-constitute the college, making it a public institution with a representative governing body, in association with the county councils of Gloucestershire and the adjoining counties. In addition to providing courses for pupils proposing to become farmers or manage estates, it is proposed to hold vacation courses for village schoolmasters desiring to become qualified to teach rural subjects. Forty acres of land are attached to the college, and, in addition, the students have access to a farm, arable and pasture, of more than 450 acres. Great attention is directed to



forestry, and the professor and students have the advantage of a forest nursery located in Earl Bathurst's park, a portion of which he placed at the disposal of the college for this purpose.

THE Board of Education has published (Cd. 4037) the Regulations for English Secondary Schools for the year beginning August 1 next. The regulations are in main substance the same as those of last year. Owing to difficulties which have arisen during the past year in the interpretation of the regulations referring to the provision of free places in secondary schools, these rules have been further defined. It is made clear that boys and girls applying for such free places may be required to pass an entrance test of attainments and proficiency, having due regard to the age of the applicants, the subjects in which they have been receiving instruction, and the standard of attainments and proficiency required for the admission of fee-paying pupils. Pupils who enter the school as bursars or pupil teachers must not be counted in estimating the number of free places provided. In examinations held for the selection of boys and girls to occupy free places, importance is to be attached to the report of the candidate's own teachers, and the masters or mistresses of the secondary school are to be associated with teachers familiar with elementary-school conditions in conducting the examination. The regulations make provision, too, for greater elasticity in the way of adapting the instruction to the requirements of the pupil, though precautions are taken to see that this privilege is used with proper moderation. To meet the difficulty of providing secondary education in rural areas and less populous urban or semi-urban districts, the Board is prepared next year to recognise secondary schools with fifteen instead of sixteen as the normal leaving age, but this concession is only made where a consideration of local circumstances shows that it will be of distinct educational advantage to the district, and that a longer school-life is not under actual conditions possible.

## SOCIETIES AND ACADEMIES.

### LONDON.

**Royal Society, June 27, 1907.**—"On the Polymorphic Changes of Ammonium Nitrate." By **U. Behn**. Communicated by Prof. A. Schuster, F.R.S.

The main results of the research may be summarised as follows:—

(a) From the dilatometric and crystallographic work no definite information is forthcoming which affords any precise proof as to a difference in properties of the two tetragonal modifications of ammonium nitrate.

(b) The argument derived from the investigation of the thermal properties tells, so far as it goes, against the identity of the two tetragonal modifications, but it cannot be considered as decisive.

**January 30, 1908.**—"The Refractive Index and Dispersion of Light in Argon and Helium." By **W. Burton**. Communicated by Prof. J. J. Thomson, F.R.S.

The initial object of this research was to find the dispersion of light in the monatomic gases argon and helium, but as it was necessary to know the absolute value of the refractive index with considerable accuracy, determinations of the refractive index were made.

The results for argon and helium are tabulated below, and, for comparison, Mascart's values for hydrogen are also given.

Refractive index, reduced to 0° C. and 760 mm. pressure for D<sub>1</sub> line.

Argon ... ..	1'0002837
Helium ... ..	1'00003500
Hydrogen (Mascart) ... ..	1'0001387

Dispersion:—In equation

$$n - 1 = A \left( 1 + \frac{b}{\lambda^2} \right), \text{ or } n = A + \frac{B}{\lambda^2},$$

	$\frac{b}{\lambda^2}$	$\frac{A}{\lambda^2}$	$\frac{B}{\lambda^2}$
Argon ... ..	$5'6 \times 10^{-11}$	0'0002792	$1'6 \times 10^{-15}$
Helium ... ..	$2'2 \times 10^{-11}$	0'00003478	$7'5 \times 10^{-16}$
Hydrogen (Mascart) ... ..	$4'3 \times 10^{-11}$	0'0001376	$5'9 \times 10^{-15}$

It may be noted that the values of  $a/b$  for these substances are approximately in the ratio 3:1:2.

**February 13.**—"The Effect of Hydrogen on the Discharge of Negative Electricity from Hot Platinum." By Prof. H. A. **Wilson**, F.R.S.

The view taken in this paper is that the effect of the hydrogen on the leak is due to its presence in the surface layer of the platinum. To explain this it is supposed that the hydrogen atoms in the layer are positively charged, so that they diminish the charge per unit area in the electrical double layer covering the surface of the platinum. The hydrogen appears to dissolve in the platinum at first, but at high pressures in time forms a stable combination with the platinum, having a very small dissociation pressure. Before this compound has been formed, the leak is proportional to a power of the pressure of the hydrogen.

**February 20.**—"On the Dispersion of Gaseous Mercury, Sulphur, Phosphorus, and Helium." By **C. Cuthbertson** and **E. Parr Metcalfe**. Communicated by Prof. F. T. Trouton, F.R.S.

In continuation of previous work on the refractive indices of certain elements in the gaseous state, the authors have measured the dispersion of the elements named above within the limits of the visible spectrum.

The results obtained may be summarised as follows:—

Mercury ... ..	$\mu - 1 = 0'001755 \left( 1 + \frac{2'265}{\lambda^2 10^{10}} \right)$
Sulphur ... ..	$\mu - 1 = 0'001046 \left( 1 + \frac{2'125}{\lambda^2 10^{10}} \right)$
Phosphorus ... ..	$\mu - 1 = 0'001162 \left( 1 + \frac{1'53}{\lambda^2 10^{10}} \right)$
Helium ... ..	$\mu - 1 = 0'0000347 \left( 1 + \frac{2'4}{\lambda^2 10^{11}} \right)$

The dispersion of mercury is about four times that of air.

The index of sulphur for infinite waves is, within 2 per cent., four times that of oxygen. Its dispersion is, not so exactly, four times that of oxygen.

The index of phosphorus, for infinite waves, is exactly four times that of nitrogen. Its dispersion is almost exactly twice that of nitrogen.

The index of helium is, within 1.6 per cent., one-eighth of the best existing value for the index of argon. Its dispersion is about three-sevenths that of air.

**March 5.**—"On the Electrical Resistance of Moving Matter." By Prof. F. T. **Trouton**, F.R.S., and A. O. **Rankine**.

The question of relative motion between the earth and the neighbouring ether has been under discussion for many years. It has, from time to time, been the subject of important investigations, but these have all resulted negatively. The experiment described in the present paper is not different from them in this respect, yielding, as it does, no definite information on the main point. Indirectly, the aim was to measure the direction and magnitude of ether-drift, the actual method having been to attempt to demonstrate the existence of the Fitzgerald-Lorentz shrinkage, which has been supposed to mask the effect in the direct experiments of Michelson and Morley, and of Trouton and Noble.

The results lead the authors to conclude:—

(1) The total electrical resistance of a wire is not altered by an amount exceeding  $5 \times 10^{-10}$  of the whole amount by any change of its position relative to its motion through space.

(2) On the assumption that the Fitzgerald-Lorentz shrinkage is a real effect, the specific resistance of a material is dependent upon the direction of flow of the current, being greater to a current flowing parallel to the velocity of the material through space than to a current in a perpendicular direction. The magnitude of this change of specific resistance is shown by the experiments to be certainly within 2 per cent. of being sufficient to compensate the change of length.

**March 12.**—"Bacteria as Agents in the Oxidation of Amorphous Carbon." By Prof. M. C. **Potter**. Communicated by Prof. J. B. Farmer, F.R.S.

Under conditions of exposure to the air, a slow oxidation